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ABSTRACT

This report summarizes an evaluation of a staff development program to reduce disparity in educational achievement across race and sex. The Teacher Expectations and Student Achievement (TESA) program of S. Kerman, T. Kimball, and M. Martin (1980) was implemented in an elementary school. Achievement test scores, attitudes toward school and self, perceptions of teacher practices, and grade retentions were compared for the 306 students of teachers who volunteered to participate in the experimental program and students in the same school (n=329) and in a different school (n=250) whose teachers did not participate. The results differ depending on which comparison group is used. A small positive effect is implied by the within-school comparison, and a negative effect is implied by the between-school comparison. Because of competing explanations, the results remain ambiguous. In view of the popularity of the program, the limited prior empirical support for its usefulness, and the ambiguity of the results, it is concluded that further studies that include randomized trials and more careful records of the level of implementation are required. Statistical data are provided in 11 tables and 2 figures. There are 26 references. (Author/SLD)

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Increasing Teacher Expectations For Student Achievement: An Evaluation

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Charleston County School District

Gary D. Gottfredson
Johns Hopkins University

Report No. 25

November 1991

CENTER FOR RESEARCH ON EFFECTIVE SCHOOLING FOR DISADVANTAGED STUDENTS

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The Center

The mission of the Center for Research on Effective Schooling for Disadvantaged Students (CDS) is to significantly improve the education of disadvantaged students at each level of schooling through new knowledge and practices produced by thorough scientific study and evaluation. The Center conducts its research in four program areas: The Early and Elementary Education Program, The Middle Grades and High Schools Program, the Language Minority Program, and the School, Family, and Community Connections Program.

The Early and Elementary Education Program

This program is working to develop, evaluate, and disseminate instructional programs capable of bringing disadvantaged students to high levels of achievement, particularly in the fundamental areas of reading, writing, and mathematics. The goal is to expand the range of effective alternatives which schools may use under Chapter 1 and other compensatory education funding and to study issues of direct relevance to federal, state, and local policy on education of disadvantaged students.

The Middle Grades and High Schools Program

This program is conducting research syntheses, survey analyses, and field studies in middle and high schools. The three types of projects move from basic research to useful practice. Syntheses compile and analyze existing knowledge about effective education of disadvantaged students. Survey analyses identify and describe current programs, practices, and trends in middle and high schools, and allow studies of their effects. Field studies are conducted in collaboration with school staffs to develop and evaluate effective programs and practices.

The Language Minority Program

This program represents a collaborative effort. The University of California at Santa Barbara is focusing on the education of Mexican-American students in California and Texas; studies of dropout among children of recent immigrants are being conducted in San Diego and Miami by Johns Hopkins, and evaluations of learning strategies in schools serving Navajo Indians are being conducted by the University of Northern Arizona. The goal of the program is to identify, develop, and evaluate effective programs for disadvantaged Hispanic, American Indian, Southeast Asian, and other language minority children.

The School, Family, and Community Connections Program

This program is focusing on the key connections between schools and families and between schools and communities to build better educational programs for disadvantaged children and youth. Initial work is seeking to provide a research base concerning the most effective ways for schools to interact with and assist parents of disadvantaged students and interact with the community to produce effective community involvement.

Abstract

This report summarizes an evaluation of a staff development program to reduce disparity in educational achievement across race and sex. Teacher Expectations and Student Achievement (TESA; Kerman, Kimball, & Martin, 1980) was implemented in an elementary school. Achievement test scores, attitudes towards school and self, perceptions of teacher practices, and grade retentions were compared for the 306 students of teachers who volunteered to participate in the experimental program and students in the same school (n=329) and in a different school (n=250) whose teachers did not participate. The results differ depending upon which comparison group is used. A small positive effect is implied by the within-school comparison, and a negative effect is implied by the between-school comparison.

Increasing Teacher Expectations for Student Achievement: An Evaluation

Many urban school districts face high rates of student failure and drop-out. This report summarizes the results of a study of one component of a comprehensive program developed by educators and researchers working together to reduce drop-out in the Charleston County School District (CCSD) public schools (Gottfredson & Gottfredson, 1990). It illustrates some early risk factors for drop-out as experienced in this school system, describes a staff development program aimed at ameliorating early risk factors for drop-out, and presents the results of an evaluation of the program.

Being held back in a grade strongly predicts school drop-out (Bachman, Green, & Wirtanen, 1971). Figure 1 shows the percentage of first grade students who were enrolled in CCSD in 1982 who progressed normally and so were in the grade expected six years later ("on-grade"), were behind at least one grade, or were no longer in the school system. Information is shown for all CCSD elementary schools and separately for the two elementary schools included in our study.

The figure shows that *a minimum* of 29% of the elementary school children in CCSD accumulate the biggest risk factor for dropout by the time they are at the age appropriate for 7th grade. It is not possible to determine what percentage of those who have left the system have been retained in grade, but if we assume that the distribution of grade retention is the same for students who transfer out as it is for those who stay, the percentage behind grade is almost 50%.

Table 1 shows that the incidence of grade retention is unequally distributed across race and sex groups. For all CCSD elementary and middle schools, African-American students were retained in grade at the end of the 1988-89 school year at approximately twice the rate of white students, and African-American males were particularly adversely affected. The two elementary schools included in our study had higher than average ratios of African-American to white grade retentions. For males, the ratios were 4.2 and 2.8 African-American student retentions to one white student retention.

Table 2 shows estimates of the prevalence of retention -- the effect of accumulated grade retentions over the elementary school years. The table shows the percentage of each race and sex group who were "overage" in Spring, 1989. In this table, students are coded as overage if their age was greater than the highest age possible for a student who entered the CCSD system and progressed normally through the grades. In the schools participating in our study, 47% and 62% of the African-American males were overage. The percentage of African-American males overage was 2.5 to 3 times greater than the comparable percentage for white males. The African-American/white discrepancy was even greater for females. Educational success is unequally distributed across race and sex groups in the CCSD schools.

Why is educational success so unevenly distributed? Among the possible reasons are differences in the early childhood experienc-

es that prepare children for school, in characteristics and abilities that are rewarded and punished in school (e.g., aggressive behavior, intellectual capability), and in teachers' expectations for student achievement that are translated into specific teacher practices and that affect student outcomes. This study explores the latter possibility by examining the effects of a staff development program aimed at making teachers aware of their own inequitable treatment of low achievers and providing them with new techniques for responding to students.

Research on Teacher Expectations

Our society's expectations for education have changed dramatically over the years. Carter and Klotz (1990) identified three phases of societal expectancies (p. 39-40):

1. 1837-1906 -- Schools were expected to teach the 3 R's and self-discipline and to produce moral citizens.

2. 1910-1975 -- The normal curve was an expected product of instruction; teachers were accountable to provide an opportunity to learn.

3. 1976-present -- Beginning with Benjamin Bloom's mastery learning, schools have been expected to teach all students the basics and teachers are more accountable for learning.

As the expectation that all children should learn has increased, and as large group differences in school success rates have become more apparent, attention has turned to teachers' potential to influence student learning through their expectations and behaviors.

In *Pygmalion in the Classroom*, Rosenthal and Jacobson (1968) hypothesized that teachers form expectations for student performance, that students respond to the behavioral cues of their teachers, and that student performance is shaped by these expectations. This hypothesized expectancy effect became a central topic of process-product research as investigators attempted to test the Pygmalion hypothesis by observing behavior in naturally occurring classrooms (Wittrock, 1986).

Brophy and Good (1970) suggested that teachers may differentiate their behavior toward students based on their expectations, and that students may respond to teachers' behavioral cues and alter their self-concept and achievement motivation to conform to teachers' expectations.

Researchers have explored each component of the expectancy model: the accuracy of teacher expectations, the variation in teacher behaviors based on their expectations, and student interpretations and internalization of teacher expectations and behaviors. A summary of research related to each component follows.

Teacher expectations. Teachers have been found to overestimate the achievement of high achievers, underestimate that of low achievers, and to be least accurate in predicting the responses of low achievers (Coladarci, 1986; Hoge & Butcher, 1984; Patriarca & Kragt, 1986). Babad (1985) reported that less experienced teachers, teachers who believe either that integration will result in great improvement or no improvement, and teachers who prefer the lecture method more often had biased expectations.

Raudenbush (1984) examined 18 studies to determine if teacher expectations influenced IQ test scores. He found that the better teachers knew the students, the less potent were the effects. Also, the effects on test scores were larger for students in the early elementary grades (grades 1 and 2) and in grade 7 than they were for students in the upper elementary grades.

Student characteristics such as physical attractiveness, socioeconomic status, race, use of standard English, and retention status are related to the degree of discrepancy between teacher expectations for academic success and actual achievement (Cecil, 1988; Dusek & Joseph, 1983; Kenealy, Neil, & Shaw, 1988; Williams & Muehl, 1978; Crowl, 1971; Gaines & Davis, 1990). In a study of teachers' attributions for student performance, Peterson and Barger (1984) found that teachers attributed the success of perceived high achievers to ability and that of perceived low achievers to luck, making it difficult for perceived low achievers to change their teachers' expectations through their own efforts.

Teacher behaviors. Much research has attempted to identify teacher behaviors that are related to teacher expectations for student success. Good (1987) found that the following behaviors are used more often with perceived low achievers: giving general, insincere praise; providing less frequent and less informative feedback; requiring less effort; more frequently interrupting student speech; paying less attention to the student; offering fewer opportunities to respond in class; reducing wait time; giving more criticism; making less eye contact; giving fewer smiles; having fewer public and more private interactions; monitoring and structuring activities more closely; making less use of student ideas; providing fewer cues to improve responses; rewarding more incorrect answers or inappropriate behavior; and assigning seats further from the teacher. Rist (1972) found that teachers spent less time in close proximity to perceived low achievers.

Student response to teacher expectations. From their first years in school, students are able to perceive differences in teacher expectations for their own performance and that of their peers. Wittrock (1986) summarized the research in this area: "The findings suggest the early and definite effects teachers can have upon students' expectations and self-concepts of school ability" (p. 298). Young students perceive that low achievers receive more directions, rules, work and negative feedback and that high achievers enjoy higher teacher expectations for their performance and more freedom of choice (Weinstein, Marshall, Brattesani, & Middlestadt, 1982). Cooper (1983) found that low-expectation students receive more non-effort-contingent feedback designed to control their behavior; consequently these students are less likely to develop beliefs in the value of effort, are less persistent, and less successful.

Program Description

Teacher Expectations and Student Achievement (TESA; Kerman, Kimball, & Martin, 1980) is a teacher awareness training program designed to reduce the negative effects of low teacher expectations. The program was earlier titled "Equal Opportunity in the Classroom" and development was funded by an Elementary-Secondary Education Act (ESEA) Title III grant.

TESA focuses on 15 classroom behaviors that research implies are effective teaching practices and that are used more often with perceived high achievers than with perceived low achievers. The behaviors are organized into three "strands" -- response opportunities, feedback, and personal regard. Figure 2 summarizes the three strands and 15 behaviors targeted by TESA training.

Teacher training is provided in five three-hour sessions one month apart. At each session, a unit focusing on one behavior from each strand is presented. Research on the behaviors is summarized and participants discuss the effectiveness of the behaviors and reasons why they may be more often used with perceived high achievers. In preparation for peer observation, participants practice observing teaching episodes and tallying positive and negative interactions for each teacher behavior. During the weeks between TESA lessons, the participants observe at least three classrooms of other teachers, and each is observed teaching and given feedback at least three times.

During the 1973-74 school year, a study was conducted as part of the ESEA Title III evaluation. A total of 2,968 students in grades K - 12 and 258 teachers participated in the study. Participating districts were asked to identify a comparison group totaling 40 classes. Evaluators examined pre- and post-training teacher use of the TESA behaviors with identified low achievers and pre- and post-training California Test of Basic Skills (CTBS) scores for students of the TESA and control teachers.

The results indicated that teachers increased their use of the 15 behaviors with low achievers whom they targeted. Positive interactions increased with these low achievers and teachers used the new behaviors as frequently with low achievers as with high achievers. Furthermore, post-TESA CTBS Language Arts scores for the experimental group were higher than those of the control group ($p < .05$), controlling for pre-TESA scores.

The validation study team reported that "it is clear that the educational gains in language arts made by the students perceived to be low performers were statistically significant, educationally important, readily demonstrable, and attributable to the inservice training provided by the project" (Kerman, Kimball, & Martin, 1980, p. G-8).

Since the mid-seventies, TESA training has been offered in school districts across the nation. TESA training materials are now published and distributed by Phi Delta Kappa. Kerman and Associates provide trainer training on a regular schedule in three training sites and serve as training consultants to school districts.

According to Joyce and Showers (1988), TESA is "one of the most-used offerings in staff development programs across the country" (p. 42). They found TESA to be modestly effective (i.e., producing experimental-control group differences in learning of up to one-half standard deviation) and concluded that the program is valuable since the developers "provided a very direct avenue to helping teachers produce what most observers would agree is a more desirable classroom climate, an avenue that can be followed with modest amounts of training and that promises general educational benefits in the personal, social, and academic domains" (p. 44).

The Present Study

Five elementary schools volunteered to participate in a southeastern county's TESA program during the 1988-89 school year. Two of the five were selected to participate in the evaluation. They were selected because their populations were diverse and because their principals were agreeable to the evaluation. One of these two schools was eventually dropped from the evaluation because the program was not implemented according to the program standards and some of the records necessary for describing the level of implementation were lost during Hurricane Hugo.

Two experienced teachers at the remaining TESA school were trained as TESA trainers. These teachers then presented the program to their colleagues. TESA had been selected as an appropriate staff development program by the School Based Management Team of the school and the school had been awarded a $5,000 grant for the training. The principal or assistant principal attended all training sessions as participants and provided consistent and enthusiastic support for implementation. The trainers were rigorous in their use of the training model as specified in the TESA trainer manual.

Method

Sample

Students in the TESA school (School A) and a comparison school (School B) compose the study sample. The two schools are compared in Tables 3 and 4 using data from the Spring of 1988 -- prior to the year during which TESA was implemented at School A. Table 3 shows that the schools were similar in terms of their total enrollments, percentages African-American and overaged students, percentage of students receiving free or reduced lunch, and achievement test scores.

Table 4 shows the results of a school climate battery (Effective School Battery; ESB; Gottfredson, 1984) administered to teachers in the two schools in the Spring of 1988. The percentile scores suggest that the schools were similar in terms of the perceptions and characteristics of their teachers. Teachers in School A reported that they had more resources for instruction and had undergone more professional development activities than teachers in School B, and they reported feeling somewhat more secure in their school (i.e., they reported fewer experiences of victimization). On the other hand, teachers in School B reported slightly higher levels of job satisfaction.

In summary, the TESA and comparison schools were similar in student composition, most teacher attitudes, and perceptions of the school environment. Teachers at School A may have been better prepared in terms of the resources available to them and the professional development offered to them prior to the year during which TESA was implemented.

Twenty teachers volunteered to participate during the first year of the program. The staff of the school understood, however, that over a two- to three-year period all teachers would be trained in TESA. The trainers and school administrators independently rank-ordered all teachers in the school based on their perceptions of their effectiveness in producing student learning. TESA teachers were not significantly different on

these rankings than those teachers who chose to delay participation.

Table 5 shows the number and percentage of participating students and teachers. Overall, approximately half of the teachers volunteered, and 58% of the students in the school were in these teachers' classrooms. Participation was not uniformly distributed across the grade levels.

Measures

Characteristics of the students prior to involvement in TESA were obtained from school records and a short survey. School records provided information on demographics, special education services provided, grade retentions and achievement test scores from the 1987-88 school year.[1] An attitude survey was administered in the Fall of 1988 to students in grades four and five only. Outcome measures (promotions, achievement test scores, and the attitude surveys) were collected at the end of the 1988-89 school year.

The analyses were performed separately by grade because different combinations of pre- and post-test achievement scores were available for different grade levels. The following 1988-89 grade groupings were used: grade 1, grades 2 and 3, and grade 5.[2] All incoming first graders took the Cognitive Skills Assessment Battery (CSAB) as a pretreatment achievement indicator in the Fall of 1988. For grades 2 and 3, the pretreatment achievement indicator was the Basic Skills Assessment Program (BSAP) score from the previous Spring. The posttreatment achievement test administered to first through third graders in the Spring of 1989 was the BSAP. For students in grade 5 in 1988-89, the California Test of Basic Skills (CTBS) was administered both as a pre-treatment (Spring, 1988) and post-treatment achievement measure. BSAP scale scores for Math and Reading, CTBS scale scores for Math and Reading, and the total score from the CSAB were used.

In Fall 1988 and Spring 1989, fifth grade students completed a survey designed to measure attachment to school, academic self-concept, and perceptions of teacher practices related to the TESA intervention. A factor analysis confirmed the expected three-factor structure. We averaged *z*-transformed items[3] to form three scales, called Academic Self Concept, Attachment to School, and Teacher Practices. Table A-1 lists the items in each factor and explains how each was coded. The *alpha* reliabilities for the pretest survey were .75 for the Academic Self-Concept scale, .78 for the Attachment to School scale, and .74 for the Teacher Prac-

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[1]The pre-treatment achievement test for first graders was administered in the Fall of 1988.

[2]Students in grade four were excluded from the evaluation because (a) 96% of the fourth grade students in School A participated in TESA, leaving few fourth grade students for comparison within School A (see Analysis section) and (b) a large percentage of fourth graders had been held back the previous year, and the achievement test available from the previous year was different for those that had and had not been held back. Analyses of survey data were done with and without fourth graders. The results did not differ in the two analyses. For simplicity, the analysis including only fifth graders is reported.

[3]Items were standardized before creating the composite because the response formats were different for different scales.

tices scale. For the post-test survey the reliabilities were .79, .81, and .78, respectively. Note that higher scores on these scales indicate *lower* academic self-concept, *lower* attachment to school, and *more negative* judgments about teacher practices.

Analysis

Students participating in TESA were compared with two different groups: Students within School A who were in classes of the teachers who did not participate in the TESA program, and students in the comparison school, School B. For the latter comparison, we selected a stratified random sample (stratified by grade level) of students from School B so that the average grade level of the TESA and comparison students would be the same. Of the 712 students at School B, 249 were selected to serve as a comparison group for the 305 School A students who participated in TESA.

Analysis of covariance (ANCOVA) was used to assess post-treatment differences between the TESA group and each of the comparison groups. For each grade grouping, if significant pre-treatment differences in *either* comparison (School A/School B or TESA/non-TESA within School A) were found, the pre-treatment variable was used as a covariate.

Pre-treatment variables examined for possible group differences were: proportion male, proportion African American, mean age, proportion of students receiving free or reduced lunch, proportion of students in self-contained classes, proportion of students in resource classes, proportion with a handicap (speech, hearing, visual, orthopedic, and/or emotional), proportion retained in the last school year, and pre-treatment achievement test means. For fifth graders, the Fall, 1988 scores on the three attitudes scales were also examined.

Finally, we examined interaction effects of initial achievement level of students with TESA participation to determine whether the effects of TESA differed for students of different achievement levels. TESA's emphasis on equitable treatment for low achievers should produce larger effects for low achievers. Each student was ranked as a low, medium, or high achiever, on the basis of scores on the pre-treatment achievement test. The student was coded as a high achiever if he or she was in the top third of the test-score distribution for the school, medium if he or she scored in the middle third of the distribution, or low if he or she scored in the bottom third of the distribution.

Results

Pre-treatment differences across the three groups are shown in Table 6. For all grade groupings, fewer TESA participants were receiving special education services than non-participants in School A, and the proportion of TESA participants retained the previous year was higher than for non-participants in School A. In grade 1, pre-TESA cognitive skills, as measured by the CSAB, were higher for TESA participants than for non-participants, and in grade 5, TESA participants were younger than non-participants.

With respect to the School A - School B contrast, a higher proportion of grade 1 through 3 School B students and a lower proportion of grade 5 School B students were receiving special education services. In

addition, for grades 2, 3, and 5, a higher proportion of TESA students in School A had been held back the previous year, and TESA students had higher reading test scores.

In summary, TESA participants started the 1988-89 school year with the disadvantage of having been retained at a higher rate in the previous year, but with the advantage of having higher reading test scores. Special education students also seem to have been under-represented in the TESA classrooms. These differences are statistically controlled in the analyses of post-test differences.

Table 7 shows the unadjusted means for each outcome measure for the three groups of students. In this table, asterisks indicate significant uncontrolled mean differences, and superscripted letters indicate significant mean differences when the pre-treatment differences are statistically controlled.

Table 8 shows the adjusted means for outcome variables for which significant treatment effects were found after controlling for pre-treatment differences. These numbers give a more accurate representation of the true magnitude and direction of effects, once pre-treatment variables are controlled.

Grade 1. Table 7 shows that TESA participants were promoted at a higher rate and performed better on the achievement tests than did non-participants in School A, but the differences were not significant. The post-treatment BSAP reading scale score advantage for TESA participants was almost significant ($p < .10$) when pre-treatment differences were controlled. However, a higher proportion of School B comparison students were promoted. School B students also had higher post-test BSAP reading and math scores. These differences remained significant after controls for pre-treatment differences were applied. Table 8 shows adjusted scores on these outcome variables.

Grades 2 and 3. The results for grades 2 and 3 are similar to those for grade 1. Within School A, unadjusted means show that TESA participants have higher promotion rates than non-participants. Both grade 2 and grade 3 differences disappear, however, when pre-treatment variables are controlled. The School B/School A comparison shows that School B students had significantly higher post-BSAP reading scale scores ($p < .01$), even after controlling for pre-treatment differences. Table 8 shows the magnitude of the adjusted mean difference.

Grade 5. No significant differences were found for the TESA and non-TESA students within School A. School B students scored lower than TESA participants on the reading portion of the post-test CTBS and the difference remained when pre-treatment variables were controlled ($p < .01$).

Grade 5 survey. TESA participants from School A liked school less than their comparison students at School B, and this difference persisted after controlling for differences in pre-treatment Attachment to School.

Interactions with achievement level. The only significant interaction of TESA participation with achievement level was for the BSAP reading scale score in the within-School-A comparison for first grade. Table 9 shows adjusted reading scale scores for low, medium, and high achievers in the first grade. It shows that the reading advantage for TESA participants over nonparticipants in School A (shown in Table 7) was solely due to the low achievers in the first grade.

The low-achieving first graders were the only group whose adjusted scores were higher than the scores of the comparison students.

Observation data. As part of the TESA intervention, teachers observed each others' classrooms and counted positive and negative responses to students identified as low-, medium-, and high-achievers. A faithful implementation of TESA would show equal distributions of these teacher responses across the different achievement groupings. Table 10 compares these teacher responses for the three groups within each grade level.

For first graders, the number of positive responses per student observation was 3.37 for low and medium achievers and 5.12 for high achievers. For all achievement levels in this and all grade groupings, the number of negative responses per student observation was small and varied little across groups. The pattern of positive responses among grade 1 teachers looks like the pattern that would be expected in the absence of the TESA program: Low achievers received fewer positive teacher responses.

For grades two and three, the number of positive responses per student observation was 5.35 for low achievers, 4.71 for medium, and 4.55 for high achievers. This pattern of teacher responses -- with more positives provided for low achievers than for the other groups -- suggests that the teachers may have been overcompensating in their responses. TESA seeks to produce an equal distribution of responses rather than to reverse the direction of the inequality.

Finally, for grade 5, medium achievers had a higher level of positive responses per student observation (4.74) than low achievers (4.33) or high achievers (3.79). The difference between the highest and lowest group is roughly the same as the difference in grades 2 and 3, and the pattern of more positives for medium and low achievers again suggests teacher overcompensation.

The absence of normative data and the small numbers of teachers for whom observations are available limit the utility of these observation data. Nevertheless, they fail to show a consistent pattern of equal teacher responses across the different achievement levels. They also suggest that the program was least well implemented at the first grade level.

Conclusion

This study provides little support for a positive effect of the TESA program, but this conclusion must be tempered with a methodological concern.

When TESA participants within School A are compared with students in the classrooms of non-TESA participants, no dependable differences are found. A nonsignificant trend favors TESA participants in grades 1 through 3. In grade 1, a nearly significant advantage on the reading test score is due to better-than-expected performance of low achievers, as would be expected if TESA were well implemented. No such trend is found for grade 5 students. The observation data, however, fail to support the hypothesis that would be most consistent with this pattern of outcomes, i.e., that TESA was most faithfully implemented in grade 1 and least in grade 5. Instead, it appears that TESA was least well implemented by grade 1 teachers.

When TESA participants are compared with non-TESA participants from the comparison school, the results favor the comparison students.

Our study does not enable us to differentiate among three inferences that might be drawn from the results. (1) The TESA program is slightly harmful, and the within-School A comparison is misleading because the teachers who volunteered for TESA participation were better teachers than those that did not volunteer. (2) The program has no effect, and the School A/School B comparison is misleading because some more potent intervention occurred at School B which caused its students to perform better relative to those at School A. (3) The program was not well implemented and hence the study is incapable of evaluating its effectiveness.

None of these inferences has strong support: (1) As noted earlier, ratings by the principal at School A and the TESA trainers did not differ significantly for the TESA and non-TESA teachers -- a pattern inconsistent with the first of these interpretations. (2) None of the data we collected explains the unexpected observed differences between School A and School B. The Effective School Battery teacher survey results (Table 4) and the student characteristics (Table 3) suggest that the schools were similar prior to the TESA program, and we know of no program, policy change, or staff change that would have created a beneficial change in School B during the year TESA was implemented in School A. (3) The pattern of teacher responses evident in the observation data suggests that the program may not have been well-implemented in School A, but these data are inconsistent with the perceptions of the principal, teachers, and staff development personnel who thought the program standards were faithfully applied.

The research design cannot controvert any of these competing explanations, so we are left with ambiguous results. In view of the popularity of this program, the limited extent of prior empirical support for its usefulness, and the ambiguity of our results, we conclude that further studies which include randomized trials and more careful records of the level of implementation are required.

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Table 1

Percentage Students Retained in 1989 by Race and Sex

Group	All CCSD schools[a]	School A (TESA)[b]	School B (comparison)[b]
African-American males	23.6	21.4	9.9
African-American females	15.7	13.3	10.4
White males	10.9	5.1	3.6
White females	8.4	5.6	4.5
Ratio of African-American to white retention rates:			
Males	2.2	4.2	2.8
Females	1.9	2.4	2.3

Source: Rose & Tee (1990).

[a]Includes grades 1-8.
[b]Includes grades 1-5.

Table 2

Percentage of Students Not in the Grade Expected for Their Age,

by Race and Sex -- Spring, 1989

Group	School A (TESA)	School B (comparison)
African-American males	61.5	46.8
African-American females	42.3	42.7
White males	20.3	19.5
White females	9.6	6.5

Table 3

Selected Characteristics Measured in Spring, 1988 -- TESA and Comparison Schools

School and grade	Enrollment	% African American	% not overage	% free-reduced lunch	% meeting achievement standard[a]	
					Reading	Math
School A (TESA)						
K	91	41	95	--[a]	--	--
1	153	39	81	27	93	89
2	156	22	75	16	96	94
3	153	35	69	24	94	92
4	137	26	75	--	--	--
5	122	18	69	--	--	--
School B (comparison)						
K	112	25	97	--	--	--
1	151	39	85	26	83	86
2	140	24	81	15	94	95
3	122	25	79	14	97	95
4	114	30	70	--	--	--
5	127	31	77	--	--	--

[a]Available only for grade levels included in state testing program.

Table 4

Percentile Ranks for Teacher Scales from the Effective School Battery, Spring, 1988

ESB scale	School A (TESA)	School B (comparison)
Safety	94	99
Morale	95	91
Planning and Action	89	95
Smooth Administration	94	87
Resources	89	62
Race Relations	92	91
Parent/Community Involvement	99	99
Student Influence	73	80
Avoidance of the Use of Grades as a Sanction	86	93
Pro-integration Attitudes	28	28
Job Satisfaction	74	83
Personal Security	89	76
Classroom Orderliness	90	88
Professional Development	84	71
Nonauthoritarian Attitudes	41	45
Number of teachers responding	46	28
Percentage of teachers responding	88%	78%

Table 5

Number and Percentage of Teachers and Students Participating in TESA --

School A

Grade level	Students		Teachers	
1	63	(36.0)	3	(33.3)
2	65	(41.7)	3	(37.5)
3	77	(48.4)	4	(50.0)
4	159	(96.4)	6	(85.7)
5	101	(69.6)	4	(66.7)
Total	465	(58.1)	20	(52.6)

Note. Some teachers teach more than one grade level. In these cases the teacher is included in the grade level in which most of the teacher's students are located.

Table 6

Means and Standard Deviations for All Pretreatment Measures, TESA and Comparison Groups, by Grade

Pretreatment measure	School A TESA participants			School A Non-participants			School B		
	M	SD	N	M	SD	N	M	SD	N
Grade 1									
Proportion male	.52	.50	63	.52	.50	112	.58	.50	51
Proportion African American	.35	.48	63	.34	.48	112	.31	.47	51
Age	6.34	.50	63	6.29	.54	112	6.39	.56	51
Proportion free/reduced lunch	.23	.43	60	.22	.41	102	.18	.39	50
Proportion handicapped	.06	.24	63	.14	.35	112	.20**	.40	51
Proportion in self-contained class	.00	.00	63	.01	.09	112	.00	.00	51
Proportion in resource	.00	.00	63	.07**	.26	112	.00	.00	51
Proportion retained, Spring 1988	.22	.42	63	.10**	.30	98	.24	.43	51
Total score, CSAB, Fall 1988	101.05	11.48	63	96.40**	11.10	101	97.87	10.00	47
Grades 2 and 3									
Proportion male	.48	.50	142	.52	.50	172	.50	.50	113
Proportion African American	.26	.44	142	.29	.46	172	.32	.47	113
Age	7.83	.70	142	7.87	.80	172	7.86	.77	113
Proportion free/reduced lunch	.17	.38	141	.19	.39	162	.17	.38	110
Proportion handicapped	.13	.34	142	.16	.36	172	.10	.30	113
Proportion in self-contained class	.00	.00	142	.03**	.18	172	.00	.00	113
Proportion in resource	.01	.08	142	.06***	.24	173	.09***	.28	114
Proportion retained, Spring 1988	.16	.36	140	.05***	.22	159	.04***	.19	109
Reading scale score, BSAP, 1988	859.39	72.53	109	855.28	81.93	140	846.92**	74.25	93
Math scale score, BSAP, 1988	821.38	82.16	109	823.84	82.41	140	836.41	64.30	93
Grade 5									
Proportion male	.52	.50	100	.68*	.47	44	.54	.50	84
Proportion African American	.22	.41	100	.32	.47	44	.26	.44	84
Age	10.26	.47	100	10.45**	.58	44	10.39*	.68	84
Proportion free/reduced lunch	.10	.30	101	.15	.37	26	.14	.34	81
Proportion handicapped	.17	.38	100	.52***	.51	44	.06**	.24	84
Proportion in self-contained class	.00	.00	100	.34***	.48	44	.00	.00	83
Proportion in resource	.10	.30	101	.09	.29	44	.09	.29	85
Proportion retained, Spring 1988	.26	.44	101	.04**	.20	26	.05***	.22	81
Total reading scale score, CTBS, 1988	724.09	44.64	90	717.96	41.28	23	702.80***	49.36	66
Total math scale score, CTBS, 1988	696.07	29.24	90	706.91	27.68	23	690.82	21.51	66
Academic self-concept	.00	.43	95	.10	.46	23	-.01	.54	69
Attachment to school	.10	.52	96	.11	.62	24	.02*	.52	70
Teacher practices	.11	.53	94	.15	.50	24	.02	.55	69

*Mean of this group differs from TESA participant group mean, $p < .10$.
**Mean of this group differs from TESA participant group mean, $p < .05$.
***Mean of this group differs from TESA participant group mean, $p < .01$.

Table 7

Means and Standard Deviations for All Outcome Measures, TESA and Comparison Schools, by Grade

	School A TESA participants			School A Non-participants			School B		
Outcome measure	M	SD	N	M	SD	N	M	SD	N
Grade 1									
Proportion promoted, Spring 1989	.84	.37	63	.79	.41	103	.90[b]	.30	51
Reading scale score, BSAP	849.08	86.38	63	840.14[a]	98.91	103	856.35[b]	86.94	51
Math scale score, BSAP	831.81	86.38	63	804.20	94.64	103	828.72[b]	83.40	51
Grades 2 and 3									
Proportion promoted, Spring 1989	.94	.24	142	.86**	.35	173	.91	.28	114
Reading scale score, BSAP	838.27	83.13	142	847.31	81.95	163	859.01[c]	88.56	113
Math scale score, BSAP	873.74	100.40	141	857.39	100.95	163	864.88	109.74	113
Grade 5									
Proportion promoted, Spring 1989	.89	.31	100	.92	.28	24	.86	.35	85
Total reading scale score, CTBS	743.39	39.08	101	733.15	45.96	26	720.58***[c]	44.16	81
Total math scale score, CTBS	695.99	101.00	101	707.42	17.94	26	702.64	16.77	81
Academic self-concept	.04	.47	97	.02	.39	25	-.02	.49	69
Attachment to school	.14	.55	97	.14	.58	25	-.07***[c]	.52	69
Teacher practices	.18	.56	94	-.01	.53	23	.05	.58	69

Note. Analysis of covariance adjusts for pre-existing differences on the following variables: grade 1--proportion in resource, proportion retained (Spring 1988), total score CTAB (Fall 1988); grades 2 and 3--proportion in resource, proportion retained, and reading scale score BSAP (1988); grade 5--age, proportion male, proportion handicapped, proportion retained (Spring 1988), total reading raw score CTBS (Fal 1988). For Academic self-concept, Attachment to school, and Teacher practices, the respective pre-test measure was included as a covariate. An asterisk indicates that the mean for that group differed from the mean for the TESA participants. A letter indicates that the mean difference was significant once controls for pre-treatment differences were applied.

*Mean of this group differs from TESA participant group mean, $p < .10$.
**Mean of this group differs from TESA participant group mean, $p < .05$.
***Mean of this group differs from TESA participant group mean, $p < .01$.

[a]Mean difference is significant, controlling on pretreatment measures, $p < .10$.
[b]Mean difference is significant, controlling on pretreatment measures, $p < .05$.
[c]Mean difference is significant, controlling on pretreatment measures, $p < .01$.

Table 8

Adjusted Means for Outcome Variables for Which Significant Treatment Effects Were Found, TESA and Comparison Schools, by Grade

Outcome measure	School A TESA	School A N	School B Non-TESA	School B N
Grade 1				
Proportion promoted, Spring 1989	.94	63	.91	47
Reading scale score, BSAP, 1989	849.08	63	864.08	47
Math scale score, BSAP, 1989	821.81	63	833.63	47
Grade 2 and 3				
Reading scale score, BSAP, 1989	842.78	108	868.94	91
Grade 5				
Total reading scale score, CTBS	744.94	89	719.11	65
Attachment to school	.18	87	-.08	52

Table 9

Mean BSAP Reading Scale Score, TESA and Comparison First Grades, by Achievement Level

	School A TESA participants		School A Non-participants		School B	
Achievement grouping	Mean	N	Mean	N	Mean	N
High	896	32	910	27	910	15
Medium	822	18	866	36	877	16
Low	771	13	753	32	808	16

Note. CSAB raw score and percent retained (Spring, 1988) are controlled. Achievement level by TESA interaction is significant only for the School A TESA vs. non-TESA comparison.

Table 10

Negative and Positive Responses to Students During Observations, by Student Achievement Level

Observation variable	All students	Achievement level		
		Low	Medium	High
Grade 1				
Number of observations	167	34	32	101
Number of teachers	4	2	1	4
Number of observations per teacher	41.75	17.00	32.00	25.25
Positive responses per student observation	5.18	3.37	3.37	5.12
Negative responses per student observation	.01	.01	.01	.00
Grades 2 and 3				
Number of observations	245	68	95	82
Number of teachers	7	5	7	7
Number of observations per teacher	35.00	13.60	13.57	11. 71
Positive responses per student observation	4.57	5.35	4.71	4.55
Negative responses per student observation	.01	.00	.01	.00
Grade 5				
Number of observations	226	61	34	131
Number of teachers	5	4	4	5
Number of observations per teacher	45.20	15.25	8.50	26.20
Positive responses per student observation	4.05	4.33	4.74	3.79
Negative responses per student observation	.03	.03	.00	.03

Figure 1
Percentage of 1982-83 First Graders
On- and Behind-Grade in 1988-89

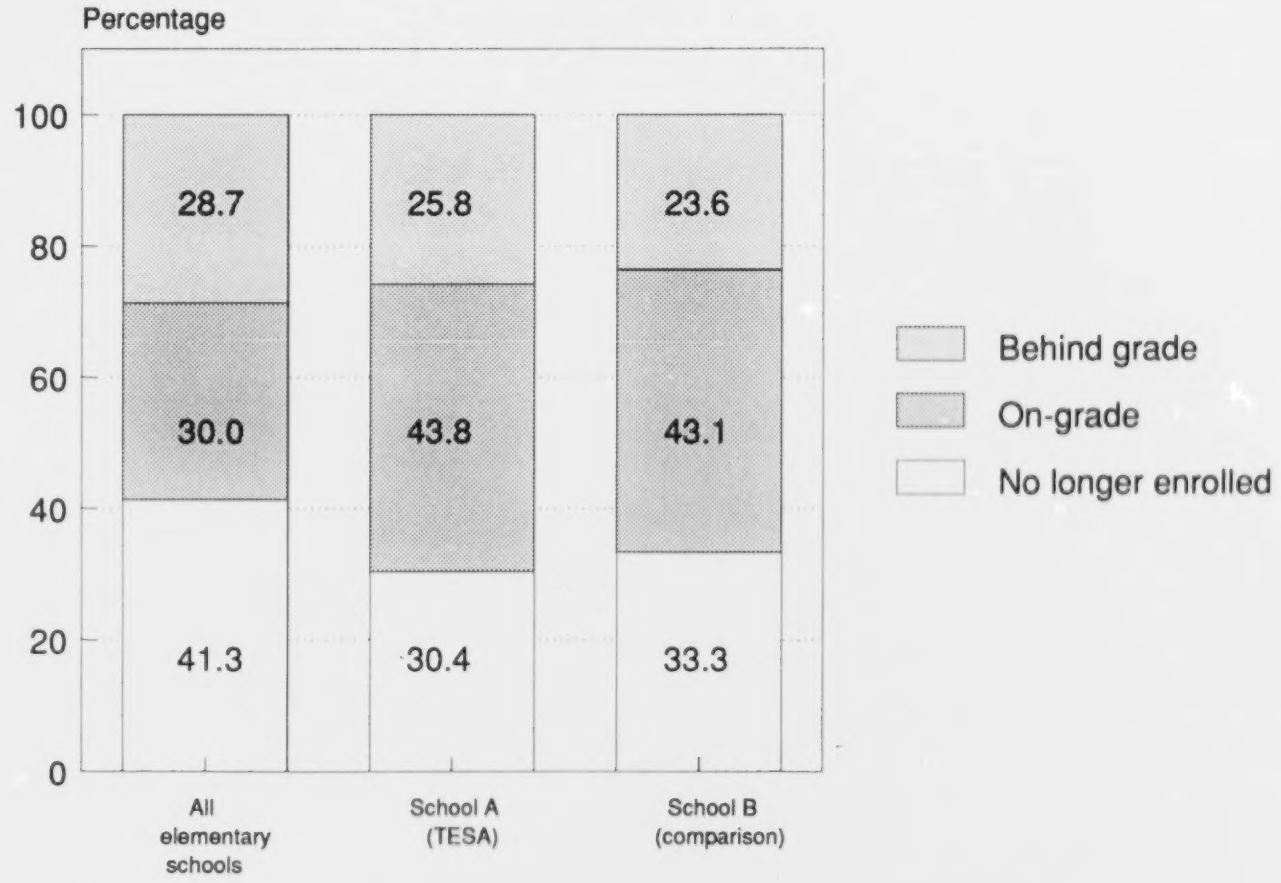

Figure 2

TESA INTERACTION MODEL

UNITS	STRAND A: RESPONSE OPPORTUNITIES	STRAND B: FEEDBACK	STRAND C: PERSONAL REGARD
1	Equitable distribution of response opportunities	Affirm or correct student's performance	Proximity
2	Individual helping	Praise of learning performance	Courtesy
3	Latency	Reasons for praise	Personal interest/ Compliments
4	Delving	Listening	Touching
5	Higher level questioning	Accepting feelings	Desisting

Source: Kerman, Kimball, & Martin (1980).

Table A-1

Item Content of Attitude Scales

Academic Self-concept

The following items are coded "0"=Yes; "1"=No:

1. I am satisfied with my school work.
3. I am doing as well in school as I would like to.
8. I am doing the best school work I can.
10. I am proud of my school work.
18. I am the kind of person who will always be able to make it if I try.
22. I like myself.

The following items are coded "1"=Yes; "0"=No:

2. I usually quit when my school work is too hard.
4. I am a failure at school.
5. Most boys and girls are smarter than I am.
19. My teacher thinks that I am a slow learner.
20. Sometimes I think I am no good at all.
21. I feel I do not have much to be proud of.

The following items are coded "0"=Very much; "1"=Somewhat; "2"=Not at all:

How do most other students in your school see you?

34. A good student?
36. Successful?

The following items are coded "2"=Very much; "1"=Somewhat; "0"=Not at all:

How do most other students in your school see you?

35. A trouble maker?
37. A loser?

Attachment to School

The following items are coded "0"=Yes; "1"=No:

6. I like to be called on by my teacher to answer questions.
11. I wish I could have the same teacher next year.
13. I am very happy when I am in school.
14. My teacher listens to what I have to say.
16. I like school very much.
23. My teacher likes me.

Note. All items were standardized and the items were averaged to create each scale.

The following items are coded "1"=Yes; "0"=No:

7. I often feel like quitting school.
9. My teacher feels that I am not good enough.
12. Most of the time I do not want to go to school.
15. My teacher likes some students more than others.
17. My teacher does not like me to ask a lot of questions during the lesson.

The following items are coded "0"=Always; "1"=Often; "2"=Sometimes; "3"=Seldom; "4"=Never:

24. I enjoy the work I do in class.
25. I feel that I can go to my teacher with things that are on my mind.
31. I can tell my teacher how I really feel about things.
32. My teacher really knows how to get me to think.

ESA-Related Teacher Practices

The following items are coded "0"=Always; "1"=Often; "2"=Sometimes; "3"=Seldom; "4"=Never:

26. I am sure what I'm supposed to do in my class.
27. My teacher gives me enough time to think before I give an answer.
28. My teacher tells me when I'm doing the right thing and when I'm not.
29. My teacher helps me think of the right answer by giving hints.
30. I feel my teacher really listens to what I have to say.
33. My teacher is polite to me.

The following items are coded "0"=A lot; "1"=Sometimes; "2"=Not very often:

38. My teacher calls on me.
39. My teacher helps me.
40. My teacher tells me when I am doing good schoolwork.

---

ote. All items were standardized and the items were averaged to create each scale.